



A C O M P L E T E L I N E O F E Q U I P M E N T



GAR WOOD INDUSTRIES, INC.

AIR CONDITIONING DIVISION

Manufacturers of Oil Burners, Oil-fired Air Conditioning Systems and Boiler Burners, Oil-fired Water Heaters and Gas-fired Air Conditioning Systems

General Offices

7924 RIOPELLE ST., DETROIT, MICH.

● **EXPERIENCE**—The Air Conditioning Division of Gar Wood Industries, Inc., is part of a huge industrial organization, with factories in Detroit, San Francisco and Windsor, Ontario, and with factory branches and distributors in principal cities.

All products of the Air Conditioning Division are designed by Gar Wood engineers and built in the Gar Wood factories.

Eight years ago, Gar Wood Industries introduced a revolutionary type of boiler-burner unit—the first in which boiler and oilburner were matched, the boiler being designed for quick-burning oil fuel, instead of for slow-burning fuels.

A next step was the introduction of the Tempered-Aire air conditioning system—a direct system employing the warm air principle, but with reversed heat travel and a patented Economizer having a tremendous heating area. This system set new standards in heating economy and presented new and simplified methods of filtering, humidifying and ventilating.

Gar Wood then began to manufacture conversion oil burners. From the very beginning they were conspicuous for their economy because they successfully and completely burned the low-grade fuel oils, which are highest in heat units and lowest in cost.

Two years ago Gar Wood engineers developed "Air-Dux," a simplified duct system consisting of a series of welded parts, designed to standard building measurements and practice, which eliminate the need for "tailor made" trunk lines. This duct system is a great benefit to architects and builders alike.

Another addition to the Gar Wood line was a gas-fired Tempered-Aire, which applies the same heat-extracting principles to



GAR WOOD, PRESIDENT

gas, as the standard Tempered-Aire does to oil.

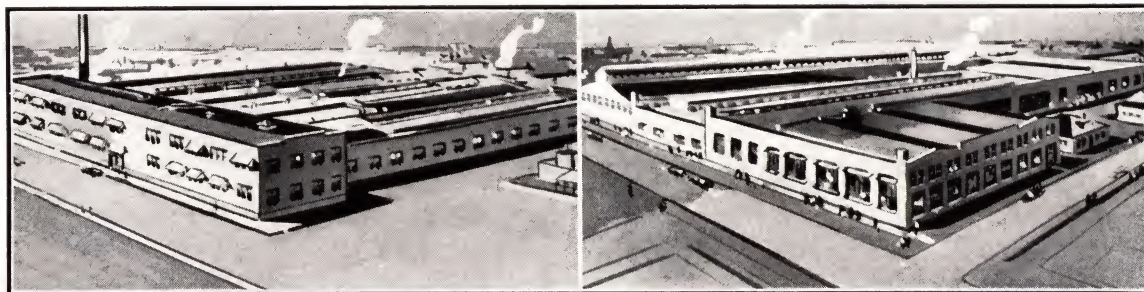
To complete the line there is a commercial oil burning water heater, fully automatic, economical and trouble-free; a domestic oil burning water heater of the storage type and one of the coil type with separate storage tank; and a line of ventilating fans for residential and commercial use.

● **MANUFACTURING FACILITIES**—Gar Wood Oil and Gas Burning and Air Conditioning Equipment, except for certain accessories such as motors and automatic electrical control units, is entirely made in its own modernly equipped and rigidly supervised plant at Detroit, Mich.

● **DISTRIBUTION**—Sales and installations are handled nationally in all principal cities through branches and licensed distributors.

● **RESPONSIBILITY**—Gar Wood Products are backed by a sound financial organization—a company which has not only weathered the storms of the recent years of depression, but has improved its commercial position during that period.

● **ENGINEERING SERVICES**—Gar Wood Distributors are all experienced oil heating and air conditioning engineers whose advice and assistance may be relied upon. A corps of competent consulting engineers is maintained at each factory branch for the convenience of the architect in adapting the broad line of Gar Wood Oil and Gas Heating Units and Air Conditioning Equipment to unusual installations, and the economical solution of oil and gas heating and air conditioning problems.



DETROIT PLANTS OF GAR WOOD INDUSTRIES, INC.



GENERAL TYPES OF EQUIPMENT

● **TEMPERED-AIRE-FURNACE, BURNER, HUMIDIFIER, FILTER, BLOWER**—An enclosed, compact, balanced warm air heating unit, in five (5) capacities consisting of a steel down-draft furnace designed integrally with its automatic oil burner, humidifier, filters, and blower fan. See pages 4 and 5.

● **TEMPERED-AIRE GAS FIRED UNIT**—A fully enclosed, complete air conditioning system, in two (2) sizes, with furnace designed especially for gas fuel. Corrugated walls more than double heating surface. Made of copper-bearing steel, welded gas tight. Filters, humidifies, warms, ventilates. See page 6.

● **MODEL "R" BOILER-BURNER UNIT**—An economical, fully enclosed, balanced unit for steam or hot water heating in five (5) sizes. The automatic oil burner is integrally designed with the double-pass horizontal, firetube, welded steel boiler. For complete detailed description, see pages 7 and 8.

● **INDIRECT AIR CONDITIONING CABINET**—A compact, indirect air conditioning cabinet, in eight (8) sizes, consisting of air filter, blower, humidifier, and blast heater for use with the Boiler-Burner Units for either full indirect conditioned air heating or with a split system. See pages 8 and 9.

● **CONVERSION OIL BURNER UNITS**—Highly efficient auto-

matic oil burners for installation in existing heating plants. Designed in a complete range of sizes to meet all domestic requirements. See page 10.

● **COMMERCIAL OIL FIRED WATER HEATER**—A commercial water heater, in two (2) sizes, (used singly or in multiple) adapted to the large building field—Hotels, Hospitals, Clubs, Commercial Buildings, etc. Operation cost is surprisingly lower than with hitherto existing equipment. See page 11.

● **DOMESTIC OIL FIRED WATER HEATER**—A domestic water heater, in two types. (1) Storage type heater, in which the oil burner and flue are built into a 40-gallon storage tank. (2) Coil type heater used with separate storage tank. See page 12.

● **VENTILATOR FAN**—A complete motor driven ventilator fan in eight (8) sizes which is suspended on coil springs from the ceiling or rafters and used to cool the whole house by expelling heated air from the attic at sundown. Has many commercial applications as a ventilator. See page 13.

● **MODEL "EW" FURNACE, BURNER, HUMIDIFIER, FILTER, BLOWER**—A low priced winter air conditioning unit for small homes. Grille delivery, 80,000 B.T.U. per hour. See page 14.

CHARACTERISTICS OF OIL BURNERS

● **TYPE—OIL BURNED**—Gar Wood Oil Burners are of the pressure atomization type. All units are listed by the Underwriters' Laboratories to burn No. 3 oil or lighter.

● BURNER ASSEMBLY

Oil Filter—An advanced design filtering device connected in the oil supply line to the oil pump. Removes dirt and foreign material in the fuel oil.

Oil Pump—A quiet, self-lubricating gear pump. Single stage pump supplied as standard for inside oil tank installations. Two-stage pump available for outside oil storage tank installations. No auxiliary pumps required.

Pressure Regulator—Provides a definite oil pressure at the jet (adjustable between 90 and 150 lbs. per sq. in.) and a quick jet cut-off immediately below the operating point. Accessible for adjustment, it is connected between the oil pump and the oil tube supply to the oil jet.

Oil Tube and Nozzle—The oil tube, fitted with a removable oil strainer, terminates in the oil atomizing jet or nozzle which breaks up the oil under pressure (approximately 100 lbs.) into a fine mist and sprays it in the shape of a cone.

Air Blower-Fan—A noiseless multiblade Blower-Fan furnishes air through adjustable air ports for combustion of the oil. The air is driven through the air tube and out around the air cone. It is ejected from the air tube in the shape of a cone and meets the cone of oil mist at a fixed angle. This compels an intimate mixture of oil and air necessary for proper combustion.

Motor—The enclosed, horizontal motor drives both the blower fan and the oil pump.

Ignition System—A positive electric ignition system. The ignition spark is furnished by a step-up transformer with a 12,000-volt secondary.

● **CONTROLS**—The control units vary to suit the particular type of installation, electric current, etc.

Thermostat—A sensitive room thermostat, adjusted to a small temperature differential, starts and stops the cycle of

burner operation to maintain a uniform temperature.

Aquastat—Operating control on hot water system. On steam system acts as a boiler water temperature limiting control to provide domestic hot water during times when the thermostat does not call for heat. Usually set at 180 degrees.

Protectorelay—Instrument controlled by low-voltage thermostat or aquastat (or both) to control operation of the oil burner. Automatically cuts in and out electric current supply for ignition transformer and burner motor. Also includes safety device to shut down oil burner in case of combustion failure.

Low Water Cut-Out—Installed on steam boiler. Cuts the main current supply to the burner should the boiler water level become so low as to uncover heating surfaces.

Combination Furnace Control—Operating blower control and high limit furnace control. Allows furnace to come up to correct temperature before blower comes on, thereby preventing supplying cold air to rooms. Also burner high limit control to prevent overheating in case of blower failure.

Humidistat—A sensitive room humidistat actuated by moisture in the air to regulate flow of water to the humidifier.

● **OPERATION**—The motor-driven oil pump, the blower fan, and ignition system actuated by the thermostat, start simultaneously. The combustible gas at the burner nozzle is immediately ignited. The burner operates until the room temperature rise causes the thermostat to stop the burner cycle.

● **QUIET**—The burner assembly is sturdy and vibrationless. In operation it is practically noiseless.

● **EFFICIENCY**—Tests and actual field experience show maximum heat generated on a minimum oil consumption.

● **UNDERWRITERS' APPROVAL**—All Gar Wood Oil Burners are listed and labeled as "Standard" by the National Board of Fire Underwriters.

TEMPERED-AIRE UNIT

The Tempered-Aire heating and air-conditioning equipment made in five (5) capacities, consists of filters, blower, burner, humidifier, and oil furnace engineered into one compact, coordinated system.

In winter cleaned, humidified, warmed air is delivered from the unit to the duct system and then uniformly distributed to all parts of the building. In summer the unit circulates cool, filtered air.

Air is cleaned by dry cloth filters and circulated by a multiple-blade blower fan. The heating unit is a down-draft, warm-air furnace equipped with an integral oil burner. The humidifier, located at the top of the unit, is designed integrally with the furnace.

● **THE FURNACE**—The furnace is constructed of heavy steel, electrically welded. While the heating unit is small and compact in appearance, it contains a heating surface three times larger than that of the ordinary warm-air furnace.

The large size of the firebox decreases the rate of heat transfer, increasing the life of the unit by eliminating the wear and strain caused by high temperature operation. Rooms receive mild, mellow warm air heat instead of the usual blast of hot, parched air.

Below the firebox is that important, exclusive Gar Wood feature—the economizer—by means of which heat normally wasted in the furnace is conserved and utilized. This consists of a series of flat, thin flues, separated by thin air spaces, through which the hot gases pass before entering the smoke pipe. These economizer flues expose an enormous amount of heating surface in a very compact space, resulting in greatly lowered operating costs. Cool incoming air, passing through the interstices between the flues and wiping their outer surfaces, is pre-heated as the first step.

The second step is the final heating by contact with the firebox. In other words, we have a "counterflow" or reversed transfer of heat. The economizer is placed in contact with the cool air discharged by the blower, making for maximum difference in temperature between gas and air and consequent maximum extraction of heat.

Above the firebox is located the humidifying pan which automatically maintains the proper degree of healthful moisture.

● **THE BURNER**—The burner, Gar Wood pressure atomizing type, is designed as an integral part of the furnace.



The smallest size, Model 102, is built all in one cabinet

The mixture of oil and air is fired into a refractory bowl which acts as a combustion chamber. A clean, quiet flame discharges from this bowl in the center of the giant firebox, which acts as a "plenum chamber." The result is a soft, "soaking" transfer of heat rather than a sharp cutting action, where flame is allowed to impinge on a heating surface. For full description, characteristics, and safety controls, see page 3.

● **EFFICIENCY**—Nearly ninety per cent (90%) of the heat generated is absorbed. Stack temperatures (approximately 275 degrees) are just high enough to prevent condensation.

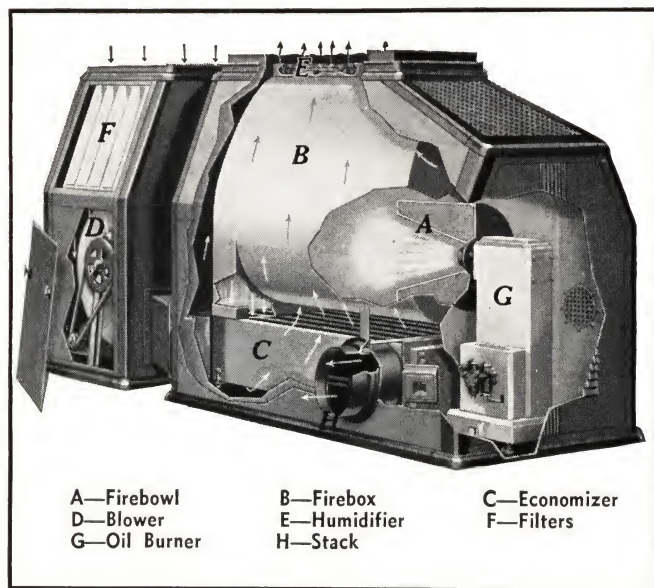
● **AIR FILTER AND BLOWER**—Compactly and efficiently designed, the air filtering and blower unit is an integral part of the plant.

The bag filters, located below the return air connection, thoroughly clean and strain the air as it passes through them into the blower fan. The dry cloth filter bags are easily removed and can be cleaned by washing. The blower unit is mounted on four flexible rubber feet, and the blower is connected to the economizer inlet by a flexible canvas connection which gives absolutely quiet operation. All blowers are provided with adjustable speed pulleys which are easily set to give the exact air delivery required.

The clean air is blown into the economizer, then up around the firebox past the humidifier. Thus warmed and humidified it is driven through the supply ducts to the rooms. A room humidistat automatically controls the delivery of water to the humidifier.

● **ENTIRELY ENCLOSED**—The furnace-burner unit is entirely enclosed in an attractive, lacquered steel casing. The front of the unit opens to give convenient access to the burner, which is out of sight and away from dust accumulation and possible tampering. Models 103, 104, 105 and 105C are built with air filter and blower cabinet separate from the furnace-burner unit. Because of the smaller sizes of the Model 102, and 102-A, they are built all in one cabinet.

● **SUMMER COOLING**—Without the usual initial expense and the expense of operation involved in the installation of a cooling plant, comfortable summer temperatures may be maintained by merely circulating the air. The night temperature of the outside air averages 20 degrees cooler than day temperature. At night, the cooler outside air is drawn through the blower cabinet and circulated through the rooms. During the daytime, the cooler basement air is drawn through the blower cabinet and circulated through the rooms, maintaining the lower temperature. The constant, draftless, complete air circulation through all the rooms is, in itself, highly beneficial.

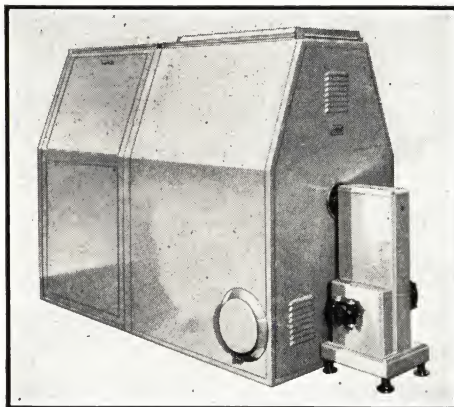


LOWER PRICED TEMPERED-AIRE MODEL 102-A

The Model 102-A is very similar in design and construction to the regular Model 102 except for a few minor changes. These do not affect the mechanism or the performance in any way, but result in a substantial saving in cost which is passed on to the home owner.

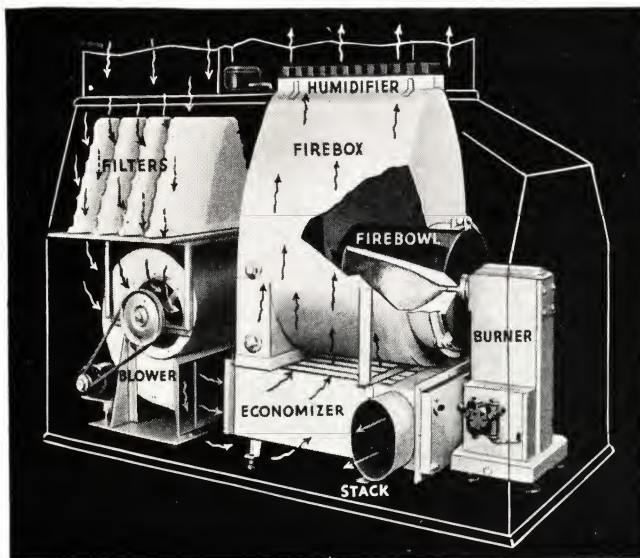
The filter is a one piece cloth sack stretched over a large wire rack rather than the four filters which are used in the standard model Tempered-Aire. The exterior case does not cover the oil burner unit which is enclosed in a pressed steel casing that keeps it free from dust.

It is especially designed for the "average sized" home where economy is essential in both original cost and upkeep.

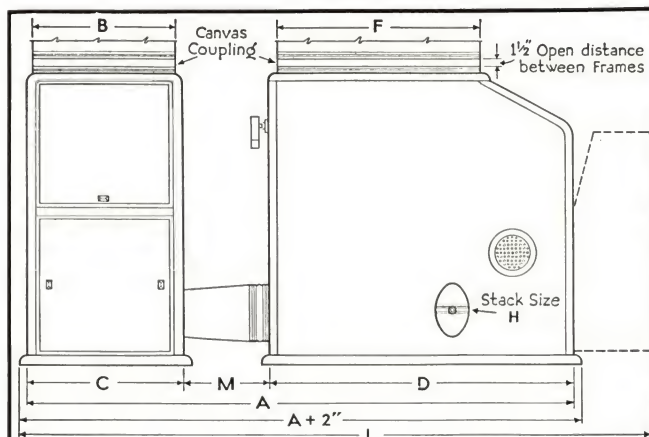


MODEL 102-A—The Burner Is Outside the Cabinet

THE TEMPERED-AIRE CHASSIS

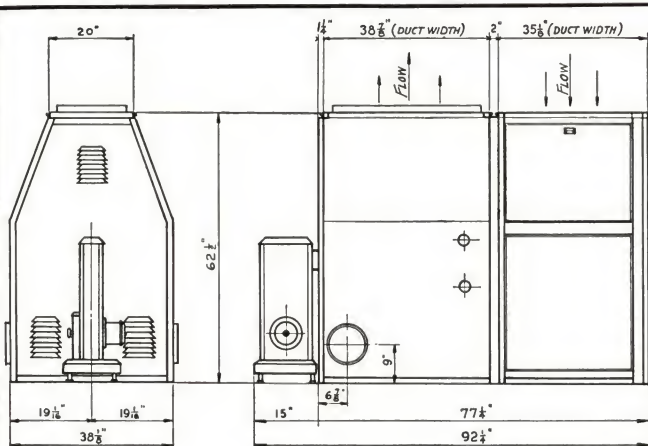


CONVENIENT REFERENCE TABLE FOR ARCHITECTS AND CONTRACTORS



MODELS 102, 103, 104, 105, 105-C SIDE ELEVATION

NOTE: Dimension M is zero in Model 102 as this unit is built in a single cabinet.



MODEL 102-A

	CAPACITIES AND DIMENSIONS	CAPACITIES AND DIMENSIONS					
		No. 102	No. 102-A	No. 103	No. 104	No. 105	No. 105-C
FRONT ELEVATION	B.t.u. 1 hr. at Bonnet.....	120,000	120,000	165,000	225,000	300,000	400,000
	B.t.u. 1 hr. at Grilles.....	100,000	100,000	135,000	185,000	245,000	300,000
	Air Delivery, C.F.M.	1000-1575	1000-1575	1375-2150	1875-2950	2500-3925	3000-4500
	Air Temperature at Bonnet	175°-135°	175°-135°	175°-135°	175°-135°	175°-135°	185°-145°
	Oil Rate, Gallons 1 hr.	1.20	1.20	1.65	2.25	3.00	4.00
	Heating Surface, Firebox, Sq. Ft.	30	30	33	44	55	55
	Heating Surface, Economizer, Sq. Ft.	60	60	99	132	165	165
	Heating Surface, Total, Sq. Ft.	90	90	132	176	220	220
	Crated Weight, Lbs.	2000	2,000	2200	2550	2900	2925
	Dimension A	94 1/8"		115 1/8"	138 1/4"	154 1/4"	154 1/4"
	Dimension B (Inside Frame)	32 1/8"		32 1/8"	36 1/8"	45 1/8"	45 1/8"
	Dimension C	38"		34 1/4"	38 1/4"	47 1/2"	47 1/2"
	Dimension D	56 1/8"		63"	75"	87"	87"
	Dimension E	38 1/4"		38"	38"	38"	38"
	Dimension F (Inside Frame)	35 3/4"		42 3/8"	54 3/8"	66 3/8"	66 3/8"
	Dimension G (Inside Frame)	18 1/8"		17 1/8"	17 1/8"	17 1/8"	17 1/8"
	Dimension H	10"		10"	10"	10"	2-10"
	Dimension L	112 1/8"		133 1/8"	155 3/4"	171 3/4"	171 3/4"
	Dimension M	0"		18 1/8"	25"	19 3/4"	19 3/4"
	Filter Area, Sq. Ft.	34	24	43	60	77	77
	Chimney Dimensions (Flue Lined) ...	8"x12"x30'	8"x12"x30'	8"x12"x30'	12"x12"x35'	12"x12"x35'	12"x16"x40'
Minimum Width Door to Admit Unit.		29"	29"	29"	29"	29"	29"

NOTE: Drawing above is for all models. Dimension M is zero in Model 102 as this unit is built in a single cabinet.

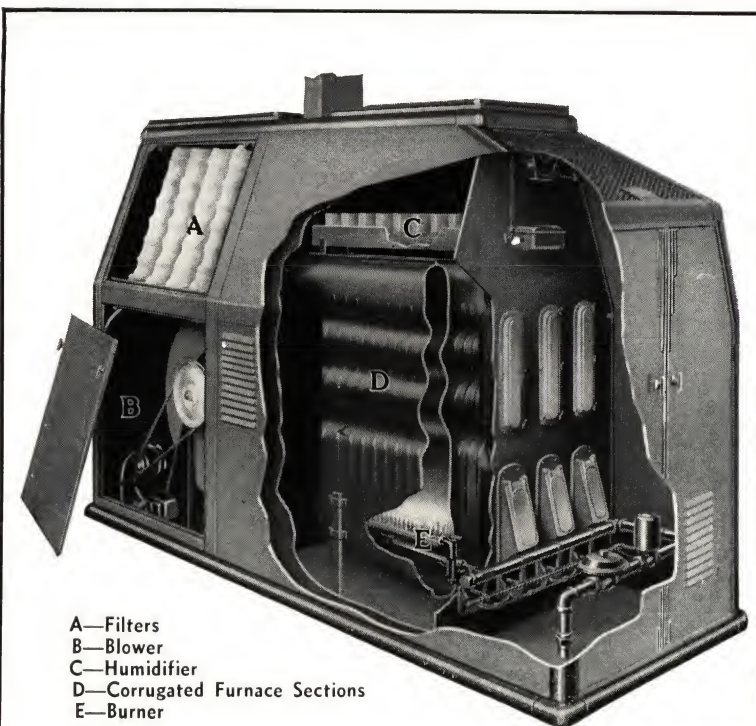
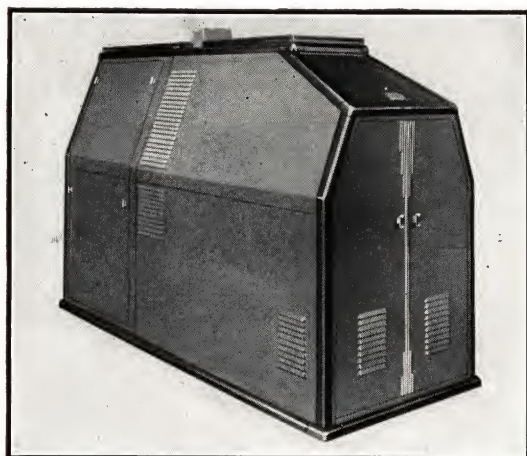
GAS-FIRED TEMPERED-AIRE

Tempered-Aire is also available for gas. This complete unit is designed for those localities where gas rates are sufficiently low to make gas heating an economy. Built in a single, compact unit, the gas-fired Tempered-Aire accomplishes the various functions of air conditioning in the most efficient manner.

Heating is automatic, clean, odorless and inexpensive. The gas valve is operated by a thermostat in one of the living rooms, supplying heat as necessary to maintain whatever temperature you select.

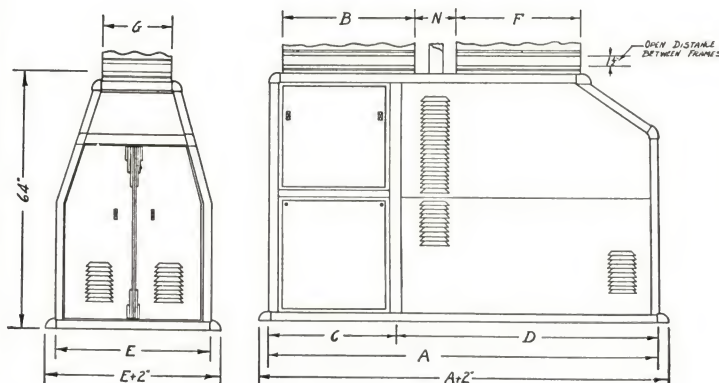
Made of heavy-gauge, copper-bearing steel and welded into a single gas-tight unit, this furnace is designed to give the maximum heat transfer. The corrugations and ribbings give a heating area more than double that of a flat surface of equal outside dimensions. The air from the blower impinges against the walls with considerable velocity and searches out every inch of heating surface. Heat is delivered immediately.

FILTERING, VENTILATING, HUMIDIFYING AND BLOWER COOLING IN SUMMER, functions of the gas-fired unit are identical with the oil-fired Tempered-Aire systems. (See page 4.)



A—Filters
B—Blower
C—Humidifier
D—Corrugated Furnace Sections
E—Burner

CAPACITIES AND DIMENSIONS	MODEL 120	MODEL 90
AGA Input, B.T.U. per hr.	180,000	135,000
AGA Output, B.T.U. per hr.	135,000	100,000
Grille Delivery, B.T.U. per hr.	120,000	90,000
Air Delivery, C.F.M.....	1200-1900	900-1400
Air Temp. at Bonnet...	175°-135°	175°-135°
Filter surface.....	34 sq. ft.	34 sq. ft.
Blower size.....	14"x14"	14"x14"
Blower Motor size.....	1/4 H.P.	1/4 H.P.
Blower Motor current consumption	250 Watts	250 Watts
Gas Connection.....	1 1/4"	1 1/4"
Flue Size.....	10"x4"	10"x4"
Dimension A	94 1/8"	94 1/8"
Dimension B	33 3/8"	33 3/8"
Dimension C	38"	38"
Dimension D	56 3/8"	56 3/8"
Dimension E	38"	38"
Dimension F	30 1/8"	30 1/8"
Dimension G	18 1/2"	18 1/2"
Dimension N	11"	11"



MODEL "R" BOILER-BURNER UNIT

The Gar Wood Model "R" Boiler-Burner Unit, in five (5) sizes, is a compact, steel, fire-tubular steam or hot water heating boiler with an integrally designed oil burner, all precisely engineered to extract maximum heat from low cost (No. 3) domestic fuel oil.

For indirect air conditioning equipment for use with these Boiler-Burner units, see page 9.

● **THE BOILER**—The Gar Wood Model "R" is a midget power boiler. It might be described as a portable horizontal return tubular type. Instead of having water legs, its combustion chamber walls are carried clear to the shell or crown sheet. These walls are backed up by high temperature insulation. The result is a considerably higher temperature of fire than is found in the conventional heating boiler. The absence of water legs is offset by the fact that the higher temperature combustion chamber walls radiate a corresponding greater amount of heat which is absorbed by the shell. This higher temperature fire

improves the combustion of No. 3 oil in the smaller quantities. It also results in a maintaining of combustion chamber temperature during the shut-down intervals of the intermittent-type burner. It is diametrically opposite to the system being proposed by some makers of water cooling the walls of small boilers.

Since there are no water legs, the bulk of the heating surface is concentrated in the firetubes or secondary heating surface. This results in a greater extraction of heat from the hot gas leaving the firebox and consequent lower stack temperatures, higher efficiency, and operating economy.

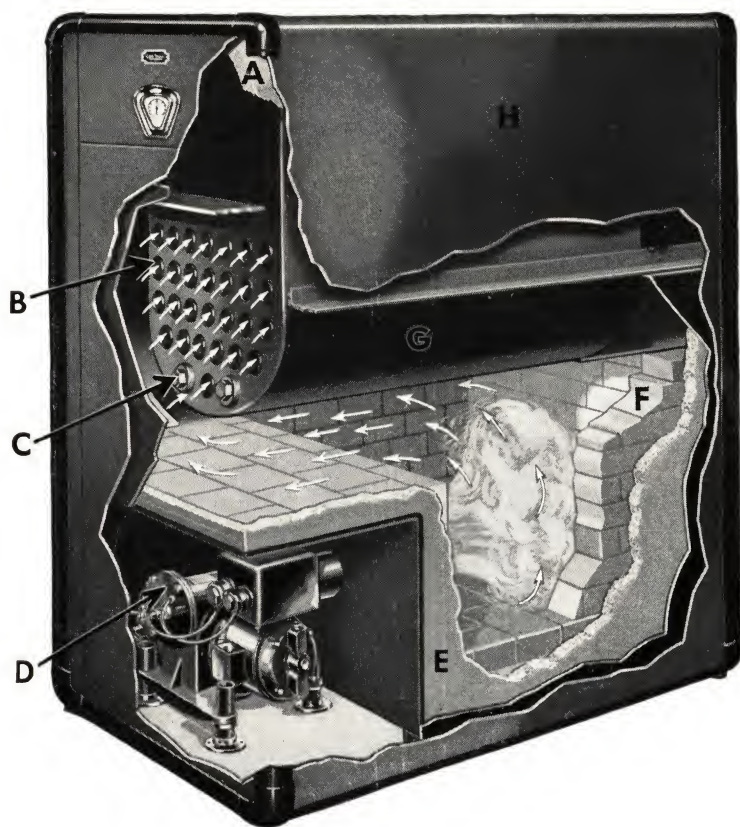
Simplicity of design is stressed throughout. The boiler tubes which are rolled into the tube sheet are accessible for inspection by the removal of the flue door immediately back of the front access doors. All units are equipped with high grade boiler trimmings, such as pressure gauge, water glass with water cocks, pop valve, etc., for steam or vapor plants, and altitude-temperature gauge for hot water plants.

● **THE BURNER**—The Gar Wood pressure atomizing burner, located at the front bottom, is co-ordinated with the boiler to produce maximum efficiency. See page 3 for complete description of burner assembly and automatic temperature and safety controls.

● **EFFICIENCY**—Due to the perfected design, virtually all the heat is extracted resulting in unmatched fuel economy.

● **ENTIRELY ENCLOSED**—The Model "R" Boiler-Burner Unit is entirely enclosed in an attractive, well finished, lacquered steel jacket.

● **DOMESTIC HOT WATER SUPPLY**—Year-round a constant, generous supply of hot water is available. This modern convenience is accomplished by installing a Gar Wood external indirect water heater below the boiler water line. In summer, the boiler water temperature is thermostatically maintained at 180 degrees—warm enough to produce hot water in abundance but controlled so no heat is delivered to the building. For ratings and dimensions see page 8.



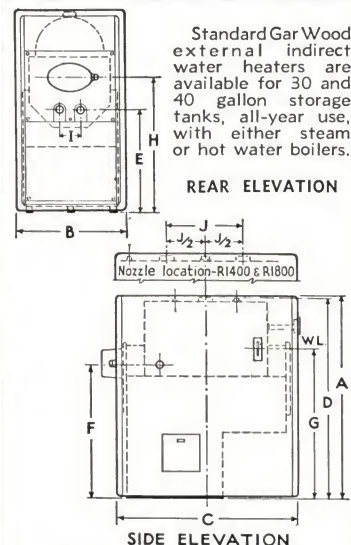
A—Jacket Insulation
B—Boiler Tubes
C—Cleanout Plugs
D—Pressure Atomizing Burner

E—Firebox Insulation
F—Refractory Brick
G—Boiler Shell
H—Lacquered Steel Jacket

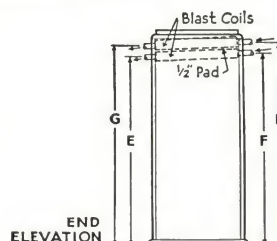
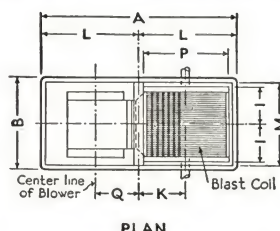
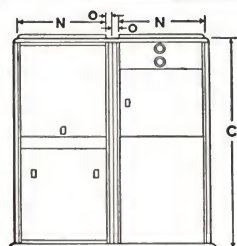


RATINGS AND DIMENSIONS—BOILER-BURNER UNITS

MODEL "R"	R475	R750	R1000	R1400	R1800
Burner model	H	H	D	D	D
Firing rate—gal. per hr.	1.65	2.50	3.25	4.50	6.00
Max. net steam load—sq. ft.	475	750	1000	1400	1800
Max. net hot water load—sq. ft.	760	1200	1600	2240	2880
Max. gross steam load—sq. ft.	712	1125	1500	2100	2700
Max. gross hot water load—sq. ft.	1140	1800	2400	3360	4320
Heating surface—sq. ft.	52	68	84	118	154
Size steam nozzle	3"	4"	4"	2-4"	2-4"
Size return connections	2-2"	2-2½"	2-2½"	2-2½"	2-3"
A—Overall height—jacket	58½	58½	68⅝	68⅝	68⅝
B—Overall width—jacket	30⅞	30⅞	37⅞	37⅞	37⅞
C—Overall length—jacket	53	65	59¾	66	80
D—Height steam nozzle	58	58	68⅝	68⅝	68⅝
E—Height return connections	29¼	29¼	29⅞	29⅞	29⅞
F—Height external heater connection	38¼	38¼	43⅝	43⅝	43⅝
G—Height mean water line	42	42	47⅝	49⅞	49⅞
H—Height smoke pipe adapter	38¾	38¾	40	40	40
I—Hor. distance between returns	6⅞	6⅞	7	7	7
J—Hor. Distance between steam nozzles				18	18
Size smoke pipe	10"	10"	12"	12"	12"
Water capacity—gals.	29.5	39.5	52	69	91
Shipping weight—lbs.	1700	2000	2200	2500	2950



CAPACITIES AND DIMENSIONS OF AIR CONDITIONING CABINETS



Based on steam at 5 lbs. pressure. To carry hot water radiation on a split system use an indirect heater above the water line to supply radiators. Use heater ratings of manufacturer.

TYPE	322	323A	323B	324	502	503A	503B	504
B.t.u. 1 hr.—Bonnet	111,000	174,000	200,000	231,000	240,000	382,000	430,000	497,000
B.t.u. 1 hr.—At grilles	89,000	140,000	160,000	185,000	192,000	305,000	345,000	397,000
E.d.r.—Net steam	370	580	665	770	800	1270	1440	1660
C.f.m.	1200	1600	2000	2000	2600	3500	4300	4300
Air temp.—Bonnet	145°	160°	152°	166°	145°	160°	152°	166°
Motor—Hp.	⅓	⅓	⅓	⅓	½	¾	1	1
Motor pulley	2.1-2.9	2.1-2.9	2.1-2.9	2.1-2.9	2.1-2.9	2.1-2.9	Two 2.1-2.9	Two 2.1-2.9
Blower—R.p.m.	325-375	400-450	475-525	475-525	325-375	400-450	475-525	475-525
Filter area—Sq. ft.	45	45	45	45	90	90	90	90
Duct system allowable friction	⅓"	⅓"	⅓"	⅓"	⅓"	⅓"	⅓"	⅓"
Steam main con.	1—3"	1—3"	1—3"	2—3"	1—3"	1—3"	1—3"	2—3"
Return connection	1—3"	1—3"	1—3"	2—3"	1—3"	1—3"	1—3"	2—3"
Intake frame	30⅞"x31⅝"	30⅞"x31⅝"	30⅞"x31⅝"	30⅞"x31⅝"	48⅞"x38⅝"	48⅞"x38⅝"	48⅞"x38⅝"	48⅞"x38⅝"
Discharge frame	30⅞"x31⅝"	30⅞"x31⅝"	30⅞"x31⅝"	30⅞"x31⅝"	48⅞"x38⅝"	48⅞"x38⅝"	48⅞"x38⅝"	48⅞"x38⅝"
Dimension A	68¼"	68¼"	68¼"	68¼"	82¼"	82¼"	82¼"	82¼"
Dimension B	32¾"	32¾"	32¾"	32¾"	50¼"	50¼"	50¼"	50¼"
Dimension C	72"	72"	72"	76"	74"	74"	74"	78"
Dimension E	66¾"	66¾"	66¾"	62¾"	65⅞"	65⅞"	65⅞"	65⅞"
Dimension F	68¾"	68¾"	68¾"	64¾"	67⅞"	67⅞"	67⅞"	67⅞"
Dimension G	1 coil only	1 coil only	1 coil only	69⅝"	1 coil only	1 coil only	1 coil only	72⅞"
Dimension H	1 coil only	1 coil only	1 coil only	71⅝"	1 coil only	1 coil only	1 coil only	74⅞"
Dimension I	14"	14"	14"	14"	20¾"	20¾"	20¾"	20¾"
Dimension K	16¾"	16¾"	16¾"	16¾"	20¼"	20¼"	20¼"	20¼"
Dimension L	34⅞"	34⅞"	34⅞"	34⅞"	41⅞"	41⅞"	41⅞"	41⅞"
Dimension M	30⅞"	30⅞"	30⅞"	30⅞"	48⅝"	48⅝"	48⅝"	48⅝"
Dimension N	31⅞"	31⅞"	31⅞"	31⅞"	38⅞"	38⅞"	38⅞"	38⅞"
Dimension O	1⅞"	1⅞"	1⅞"	1⅞"	1⅞"	1⅞"	1⅞"	1⅞"
Dimension P	29"	29"	29"	29"	47"	47"	47"	47"
Dimension Q	9⅞"	9⅞"	9⅞"	9⅞"	14⅞"	14⅞"	14⅞"	14⅞"

INDIRECT AIR CONDITIONING EQUIPMENT

The Gar Wood Indirect Air Conditioning Equipment (made in eight (8) sizes) consists of a compact cabinet unit containing air filter, blower, humidifying chamber, and indirect, blast heater.

While designed particularly for use and greatest economy with Gar Wood Boiler-Burner Units (steam, vapor, or hot water) described in detail on pages 7 and 8, the air conditioning unit may be used effectively with any adequate existing heating plant.

● **ADVANTAGES**—There are several advantages derived from the indirect air conditioning system which are not possible with the direct warm air system as described on pages 4 and 5.

(1) **Split System**—In connection with the steam, vapor, or hot water heating boiler, the air conditioning unit can be operated either as a full indirect warm air system or as a split system (part radiation and part warm air).

In the full indirect warm air system all the steam, vapor, or hot water generated is utilized by the indirect blast heater as the sole source of heat.

In the split system part of the steam, vapor, or hot water generated is utilized to heat direct radiation and part is used by the air conditioning blast heater. Certain rooms, such as kitchens, bathrooms, servants' quarters, etc., not usually air conditioned, or second and third story rooms in existing buildings, where it is not practical to install the air conditioning duct system, may be heated by direct radiation and the remainder of the house may be "air conditioned" by the indirect unit.

(2) **Domestic Hot Water Supply**—Where a Gar Wood Boiler-Burner Unit is installed in connection with the Indirect

Air Conditioning Unit, adequate year round domestic hot water supply can be furnished at one half the usual gas equipment cost. See page 7 for detailed description.

(3) **Latitude in Location**—The Air Conditioning Unit need not be located adjacent to the Boiler-Burner Unit since obviously the steam, vapor, or hot water supply and return serving the blast heater can be carried to any point in the basement. Thus a single large unit or two or more small units can often be so located as to reduce the amount of overhead duct work and make valuable unrestricted basement space available for amusement purposes.

● **THE ASSEMBLY AND HOW IT OPERATES**—The air drawn by the fan from the recirculating air duct system is first thoroughly cleaned by passing it through a battery of bag filters located at the top of the cabinet immediately above the fan. The filter bags, which are standard equipment, are easily removed and cleansed in an ordinary washing machine. This method of air filtration is thoroughly effective and low in both initial cost and maintenance.

The clean air drawn through the fan is next blown through the humidifying chamber where the proper amount of healthful moisture is added by passing it through a warm vapor mist automatically regulated by a room humidistat.

The clean humidified air is then warmed to the proper temperature by its passage through a copper blast heater.

This completely conditioned air passing through the fresh air duct system is gently circulated throughout the various rooms under fan pressure.

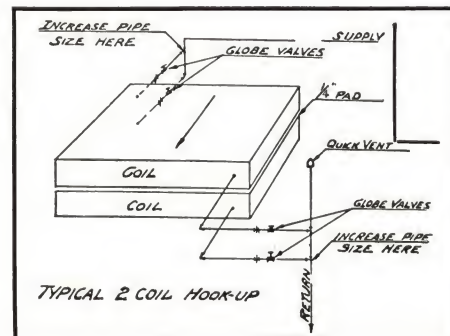
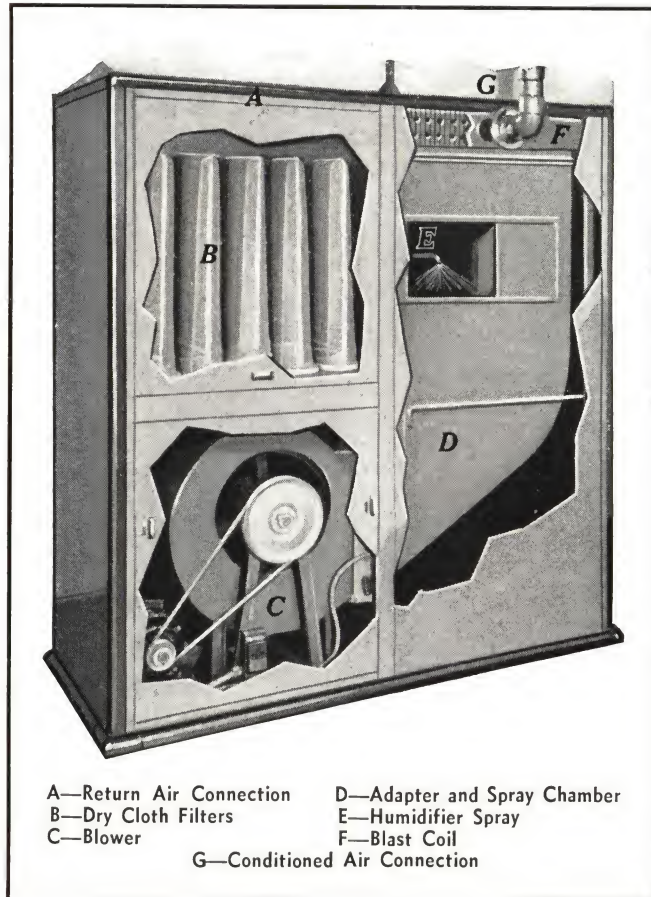
● **SUMMER COOLING**—In summer great comfort may be derived by merely circulating the filtered air through the house. During the daytime the cooler basement air may be admitted into the recirculating duct system to reduce the room temperature and at night the cooler outside air may be similarly utilized. For complete description see page 4.

Dehumidification and actual cooling is accomplished where natural cold or refrigerated water is provided. The cold water is circulated through the blast heater which is enlarged to furnish sufficient added capacity for cooling.

Mechanical cooling and dehumidification may be also accomplished by the addition of a compressor and a direct expansion coil located in the return duct.

● **GOOD APPEARANCE**—The Air Conditioning Unit is compact and comparatively small in size. The cabinet is made of sheet steel, lacquered and trimmed to match the Gar Wood Boiler-Burner Units.

● **QUIET OPERATION**—The fan and motor assembly are so designed and mounted as to eliminate all vibration and to operate very quietly at capacity. The bearings are rubber cushioned, the motor is rubber hinged, and the entire base rests on four rubber feet.



CONVERSION OIL BURNERS

Gar Wood Conversion Oil Burners are designed specifically to provide existing coal-fired heating plants with clean, automatic oil burning equipment.

While the outstanding high efficiency and operating economy obtained in the complete Gar Wood Boiler-Burner and Tempered-Aire Units cannot be attained in a boiler or furnace not specifically designed for oil fuel, all of the trouble-proof efficiency of the oil burning mechanism used in these units is available in these conversion burners.

Gar Wood Conversion Oil Burners are of the pressure atomizing type designed to handle the heavier, cheaper grades of fuel. They are fully automatic and are listed and labeled as "Standard" by the National Board of Fire Underwriters' Laboratories.

For complete description of burner assembly, automatic controls, and operation, see page 3.

● **STURDY AND SIMPLE**—Gar Wood Conversion Oil Burners are extremely sturdy in construction and so simplified in design that a considerable number of parts, common to conventional burner practice, are entirely eliminated. There are no floats, oil valves, or complicated mechanisms to get out of adjustment. The positive electric ignition system eliminates the usual gas pilot and its extra expense.

● **ECONOMIES**—The simplification in design and mechanical operation reduces the initial cost of Gar Wood equipment below that of other burners of comparable efficiency. Again Gar Wood Conversion Oil Burners reduce fuel bills by burning heavy

furnace oils (No. 3) which cost less, yet deliver more heat units per gallon. The luminous flame, firing into the ash pit, transmits heat to all the inside surfaces of the boiler. Combustion is complete—there is no smoke or odor.

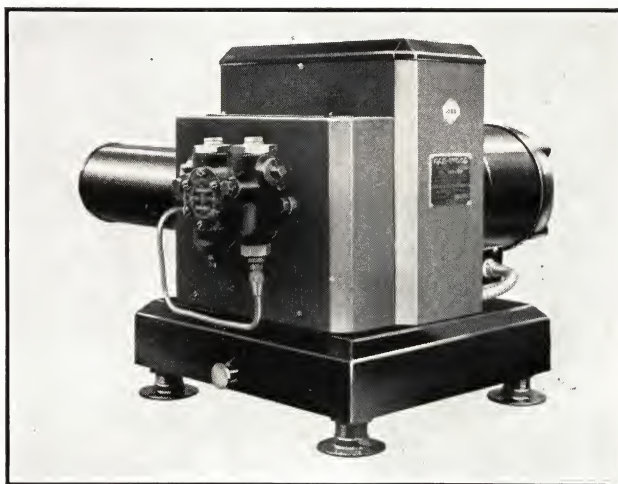
● **ACCESSIBILITY**—The burner is located outside the fire box, protected from heat deterioration and easily accessible for inspection and adjustment. The entire firing assembly can be removed through the rear in a few seconds without disturbing the burner setting.

● **NOISELESS**—The burner assembly is sturdy and vibrationless. In operation it is practically noiseless.

● **MODEL "W" BURNER**—The Model "W" Burner is enclosed in a pressed steel housing easily accessible for inspection. It is designed in three sizes to fulfill the most discriminating demands in the domestic conversion oil burner field. It is extremely flexible in capacity, and is easily capable of handling the heating requirements of every size of residence with from 412 to 2500 square feet of net steam radiation.

● **MODEL "K"**—Four burners of this type with capacities of from 412-2500 square feet of net radiation.

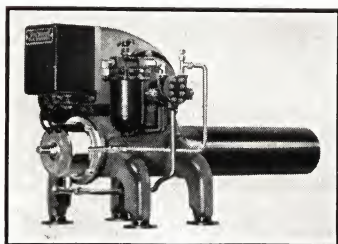
● **MODEL "H" BURNER**—Made only in one size. Designed to provide the small house market with an efficient burner at low cost. Capacities up to 625 square feet of net steam — 1,000 square feet of hot water radiation.



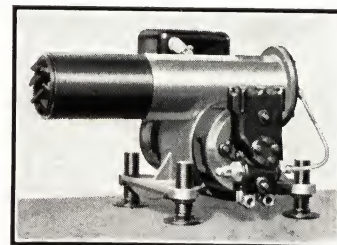
MODEL W

BURNER CAPACITIES		
MODEL	GAL. PER HR.	NET RADIATION STEAM
W-1	1.65 to 2.50	412 to 750
W-2	2.50 to 6.00	700 to 1500
W-3	6.00 to 10.00	1500 to 2500
K-1	1.65 to 2.50	412 to 625
K-2	2.00 to 4.00	500 to 1000
K-3	3.00 to 6.00	750 to 1500
*K-35	5.00 to 10.00	1250 to 2400
H	1.65 to 2.50	412 to 625

For hot water, multiply the above radiation figures by 1.6;
for gross load add 50%.
*Available for 60 cycles or d-c. only.



MODEL K



MODEL H

AUTOMATIC OIL-FIRED WATER HEATER

The Gar Wood Model "Q" Water Heaters provide the least expensive, most convenient method of producing a quick, inexhaustible supply of domestic hot water for industrial and commercial buildings. They are particularly adaptable to use in restaurants, stores, clubs, hotels, hospitals, schools, office buildings, factories, and large country estates.

Two or more units can be coupled together for any required delivery in excess of the capacity of a single unit.

The Model "Q" is an attractive, quietly operating, balanced unit which burns low-priced No. 3 fuel oil. With full electrical temperature and safety control, it needs no attention. The extremely compact design and low overall height permit its installation in shallow basements.

● **THE WATER HEATER**—The shell is constructed of heavy steel boiler plate, electrically welded with tubes rolled into the tube sheets. In principle, it is a double-pass small-power boiler similar in design to the Gar Wood Model "R" Heating Boiler described in detail on page 7. It is effectively insulated against heat loss and sound transfer. The unit has a maximum working pressure of 125 lbs. per sq. in.

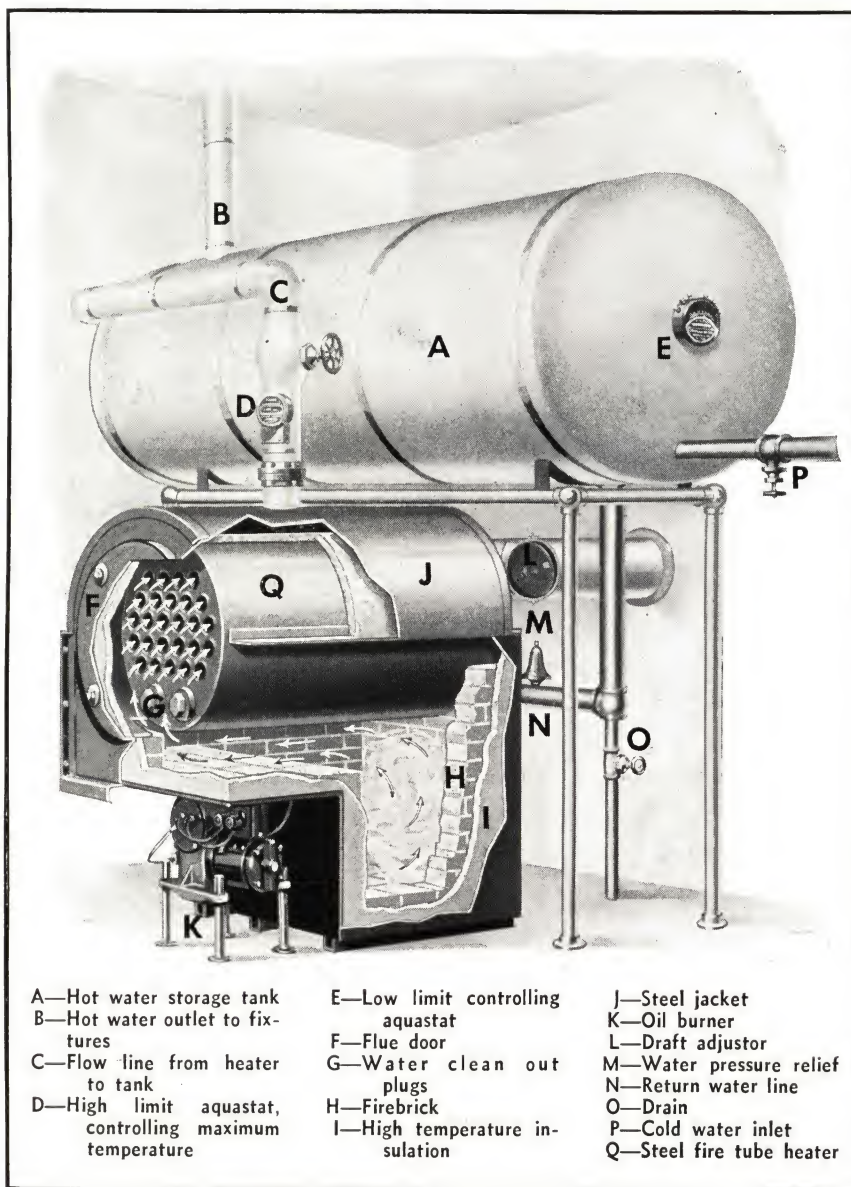
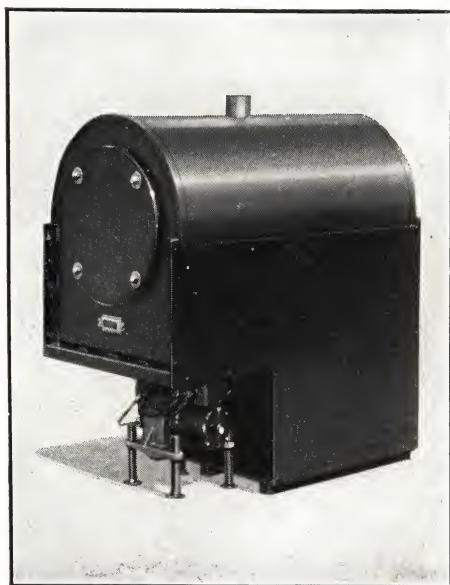
● **THE OIL BURNER**—The burner, a Gar Wood pressure atomizing unit, is designed to match and balance the boiler. For characteristics and safety controls, see page 3. The insulating deck completely isolates the burner mechanism from the effects of the heat generated.

The temperature of the water is controlled by two aquastats mounted at D and E. Aquastat E starts and stops the burner to keep the water in the storage tank at the desired temperature, while aquastat D is a high limit control which shuts off the electric current to the oil burner in case of excessive water temperature at the heater outlet.

● **EFFICIENCY AND ECONOMY**—A constant, generous supply of steaming hot water is produced automatically at approximately one-half the usual operating cost of artificial gas-fired equipment and considerably less than it can be produced with coal-fired equipment, attendance considered.

● **JACKET**—The unit is enclosed in a well finished lacquered steel jacket. The oil burner is exposed at the front.

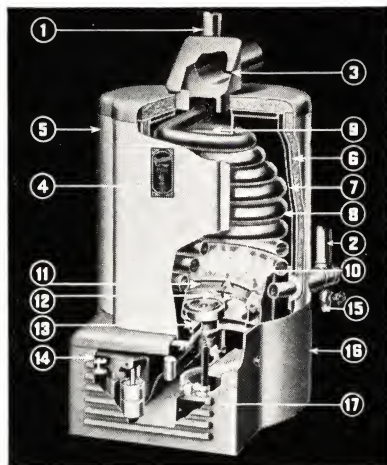
DIMENSIONS AND CAPACITIES	Q-200	Q-300
Over-all Height (Floor to Outlet)...	48"	48"
Over-all Width	28 1/4"	28 1/4"
Over-all Length	49"	61"
Water Inlet	2-2"	2-2"
Water Outlet	1-3"	1-3"
Storage Tank Size	Dependent Upon Requirement	Dependent Upon Requirement
Capacity	200 Gallons 100° F. Temp. Rise per Hour	300 Gallons 100° F. Temp. Rise per Hour
Firing Rate—Gal. per hr.	1.65	2.50
Approximate Shipping Weight, with Burner	1300 lbs.	1450 lbs.



MODEL S-50 and MODEL S-40 OIL FIRED WATER HEATERS

Model S-50 is a coil type heater, used with a separate storage tank. Its capacity is 50 gallons of water per hour, heated to 100 degrees above the temperature of the incoming water. The Model S-50 may be used with any type of storage tank selected or already installed and its compact design enables it to be locked in shallow basements and in a very small space.

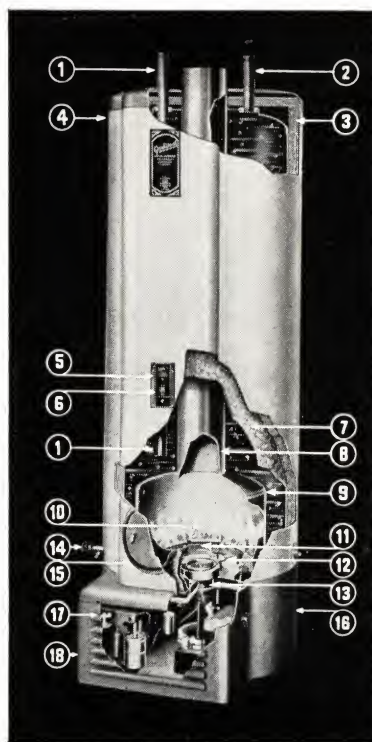
The oil burner is the rotary type, designed to give high efficiency in this type of heater. It has only one moving part and is quiet, dependable and long lived.



Model S-50

1. Hot water outlet, brass (1 1/2"). Height from floor to center of outlet, 25 1/2".
2. Cold water inlet, brass (1 1/2"). Height from floor to center of inlet, 11".
3. Access door. For easy access to combustion chamber.
4. Power shut-off switch. Shuts off heater completely.
5. Modern design casing, made of heavy automobile body steel. Finished in two-tone green lacquer.
6. Heavy rock wool insulation. Guards against heat loss—saves fuel. 1" thick at sides, 2" thick at top.
7. Half-inch dead air space—between combustion chamber housing and chromium steel radiation shield. Provides double seal against heat loss.
8. Water coil. Efficient bee-hive shape—shaped to take full advantage of wall-flame. Heavy No. 16 gauge copper. 32" long, 1 1/2" diameter. Tested at 300 lbs. hydrostatic and 127 1/2 lbs. working pressure. Large area of heat absorbing surface insures quick response to hot water demands.
9. Baffle plate. Insures maximum transfer of heat to coil by slowing up passage of hot gases into flue.
10. Wall-flame. Scientifically located for quick absorption of heat by water coil.
11. Chromium steel flame rim with diffuser grilles. Results in peak operating efficiencies 15 times faster. Vaporizes oil completely.
12. Electric ignition. Sure-fire, low-cost.
13. Burner. Burns low-cost No. 2 home heating oil. 1/200th h.p. motor. 110 volt, 60 cycle current. All metal hearth. Listed as STANDARD by Underwriters' Laboratories.
14. Oil regulating valve. Automatically insures constant rate of oil flow to burner. Also shuts off oil flow in event of abnormal operating conditions.
15. Hose connection. For basement hot water and thorough flushing of coil and water storage tank.
16. Base. Heavy construction for lifetime durability. Fully encloses and protects burner.
17. Base screen. Removable for access to burner.
18. Automatic water temperature control. Immersion or surface type. Adjustable through entire working range. Located on storage tank. Dimensions: Height, 37". Diameter, 22 1/2".

Model S-40 is the right size for the average home. It is a storage type heater in which the oil burner and flue are built into a 40-gallon storage tank, the whole being protected against heat loss by extra heavy insulation. The capacity of this model is 40 gallons of water per hour, heated to 100 degrees above the temperature of the incoming water. The storage tank is made of heavily galvanized steel, with all joints lapped and welded. The outer casing is finished in two tone green lacquer. The same type of burner as in Model S-50 is used.



Model S-40

1. Cold water inlet (1").
 2. Hot water outlet (1").
 3. Extra heavy insulation. Guards against heat loss into basement. Saves fuel.
 4. Modern design casing. Attractively finished in two-tone lacquer. Made of heavy automobile body steel.
 5. Automatic water temperature control. Adjustable to desired temperature.
 6. Power shut-off switch. Shuts off heater completely. Fully enclosed within casing.
 7. Water storage tank. 40 gallons capacity. Tested at 300 pounds hydrostatic pressure, with all seams electrically welded throughout for life-time tightness. Where water conditions preclude the use of galvanized steel, the S-50 Heater and separate copper storage tank should be used.
 8. Large flue. Extends full length of water tank. Provides generous heating surface.
 9. Dome type combustion chamber. Large area of heating surface insures minimum fuel bills and quick response to hot water demands.
 10. Wall flame, held close to heating surfaces for efficient absorption of heat by water.
 11. Quick heating, chromium steel flame rim with diffuser grilles. Results in peak operating efficiencies 15 times faster.
 12. Electric ignition. Sure fire, low cost.
 13. Burner proper. Burns low cost No. 2 home heating oil. 1/200th hp. motor. All metal hearth. Listed as Standard by Underwriters' Laboratories.
 14. Hose connection. Provides for quick and easy flushing of tank.
 15. Spring-hinged access door. For easy access to combustion chamber. Gas tight gasket.
 16. Base. Heavy cast iron for lifetime durability. Fully encloses and protects burner.
 17. Oil regulating valve. Automatically insures constant rate of flow of oil to burner. Also shuts off oil flow in event of abnormal operating conditions.
 18. Base screen. Removable for access to burner.
- RECOVERY: 40 gallons per hour, 100 degrees rise in temperature.
- INSTALLATION: Controls and burner prewired at factory. Burner, tank and casing assembled at factory, tested and shipped as unit. No basement assembly required.
- DIMENSIONS: Height, 60 1/2". Diameter, 22 1/2".

SPECIFICATIONS

MODEL S-50

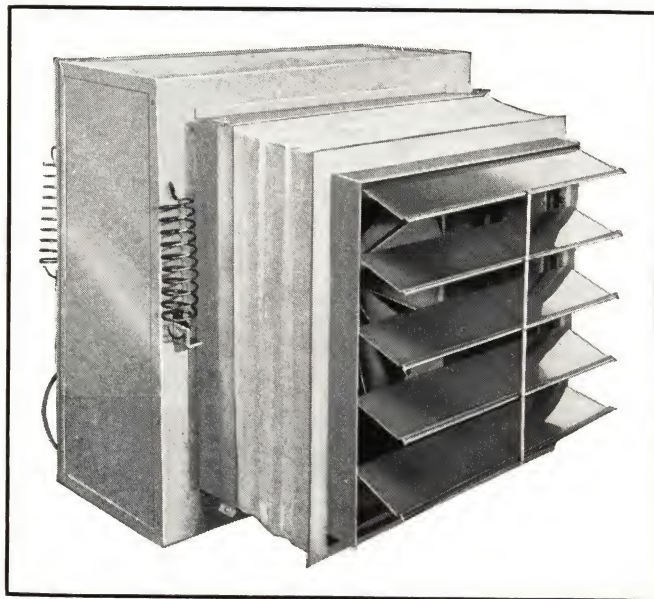
Overall Height	37"	Storage Tank Size	Up to 300 Gal.
Overall Diameter	22 1/2"	Capacity	50 Gal.
Water Inlet	1 1/2"		100 F. Temp.
Water Outlet	1 1/2"		Rise per Hour
		Approx. Shipping Weight . . .	280 lbs.

MODEL S-40

Overall Height	60 1/2"	Storage Tank Size	40 Gal.
Overall Diameter	22 1/2"	Capacity	40 Gal.
Water Inlet	1"		100 F. Temp.
Water Outlet	1"		Rise per Hour
		Approx. Shipping Weight . . .	449 lbs.

ATTIC AND COMMERCIAL VENTILATOR

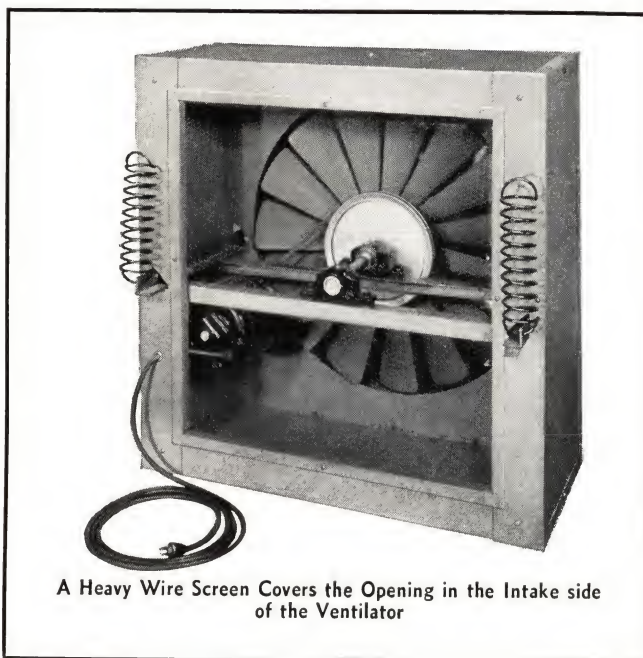
The Gar Wood Attic Ventilator will quickly and silently expel all the dead, heated air that accumulates in the bedrooms and upper part of the house during the day, and replace it with cooler,



fresher air from outdoors. Not only for home ventilation and cooling, but wherever buildings are filled with stifling air, steam, odors, smoke, fumes or dust, the ventilator will expel it and replace it with fresh, wholesome air.

The Ventilator—The ventilator consists of a quiet operating, specially designed fan and motor enclosed in a sturdy metal case which is suspended on four coil springs from the ceiling or rafters, thus assuring complete quietness when in operation.

A vibration deadening canvas boot connects the fan housing proper with a wooden frame which is installed in a window casing or other opening made for the discharge of hot air. The frame is equipped with an insect screen and an automatic outlet shutter which opens when the fan begins to operate and closes when it stops for protection against rain, dust and insects. The shutter is made of aluminum and will not corrode or stick. Everything is furnished to make the unit complete; installation can be made in a few minutes. No extra wiring is necessary. Merely plug into any convenient light current to operate.



A Heavy Wire Screen Covers the Opening in the Intake side of the Ventilator

	UNIT SIZE							
	20 in.	24 in.	30 in.	36 in.	42 in.	48 in.	54 in.	60 in.
C. F. M.	3500	5600	7500	9650	11,900	15,560	20,350	29,960
Motor H. P.	1/4	1/4	1/3	1/3	1/2	1/2	3/4	1
Motor Type	S. P.	S. P.	Cap.	Cap.	Cap.	Cap.	Cap.	Cap.
Height	27"	31"	36"	42"	48"	55"	60"	67"
Width	27"	31"	36"	42"	48"	55"	60"	67"
Depth	30"	30"	30"	32"	32"	32"	32"	34"
Shutter Dimensions	20"x20"	24"x24"	30"x30"	36"x36"	42"x42"	48"x48"	54"x54"	60"x60"
Shipping Weight	138 lbs.	148 lbs.	180 lbs.	220 lbs.	250 lbs.	290 lbs.	360 lbs.	410 lbs.

Unit consists of propeller type fan, belt driven; electric motor with built-in overload protection; metal housing; automatic outlet shutter; insect screen; canvas connection and clamps; suspension springs.

MODEL EW OIL-FIRED WINTER AIR CONDITIONING UNIT FOR SMALL HOMES

Model EW is a complete winter air conditioning unit for homes of moderate cost. It comes in one (1) size and consists of filters, blower, humidifier and oil furnace of very ingenious and simple design.

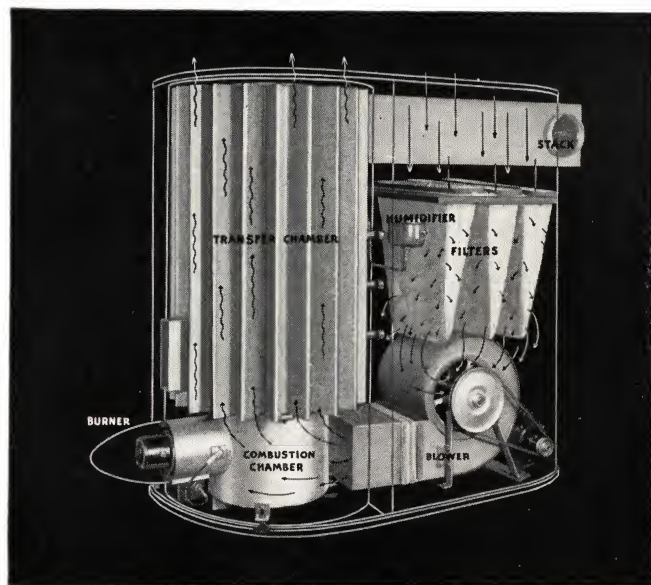
The Burner—The pressure atomizing type burner combines in one compact, quickly removable unit, the oil pump, strainer, regulating valve, electric motor, air fan and oil nozzle. The oil is forced from the pump through the hollow pump shaft, which is also the motor shaft, and through the spinning oil spray nozzle on the opposite end of the shaft. Mounted on the same hollow shaft is the air fan which mixes the proper amount of air with the oil spray and forces the mixture into the combustion chamber. Ignition is by electric spark.

The Combustion Chamber—The Combustion Chamber is made of refractory material, to develop the high temperature necessary for complete combustion of oil.

The Transfer Chamber—Above the combustion chamber is

the Star Shaped Transfer Chamber where deep triangular channelways prove a relatively large primary heated surface in contact with the combustion gases and the air stream. Inside the transfer chamber, the hot gases are restricted in their upward travel by deflectors which deflect the combustion gases against the metal walls and distribute the heat. Forced by the multi-vane blower, the air stream strikes the warm surfaces of the transfer chamber near the bottom and passing upward, scrubs against the hotter areas at the top.

Air Filter, Blower, Humidifier—The air filter and blower are housed in a compartment at the rear of the cabinet. The filters are of woven fabric which can be easily washed and sterilized. The blower is a quiet operating, multivane type, with oil ab-



Model EW is built to the highest standards of quality and workmanship. It is finished in green lacquer with chrome trim and is extremely neat and compactly designed to fit into small basements.

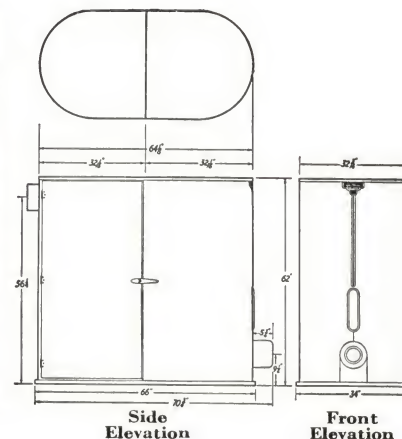


sorbent bearings, quiet motor and self adjusting belt tension. The humidifier is automatic and operates only when the flame is burning. Thus all the functions of true winter air conditioning—Filtering, Humidifying, Heating, and Forced circulation—are accomplished in a single compact unit, providing extra leisure, extra comfort and scientific health protection at a purchase price and operating cost which easily place them within the reach of the low priced home owner.

CAPACITIES AND DIMENSIONS MODEL EW FURNACE, BURNER, FILTER, BLOWER UNIT

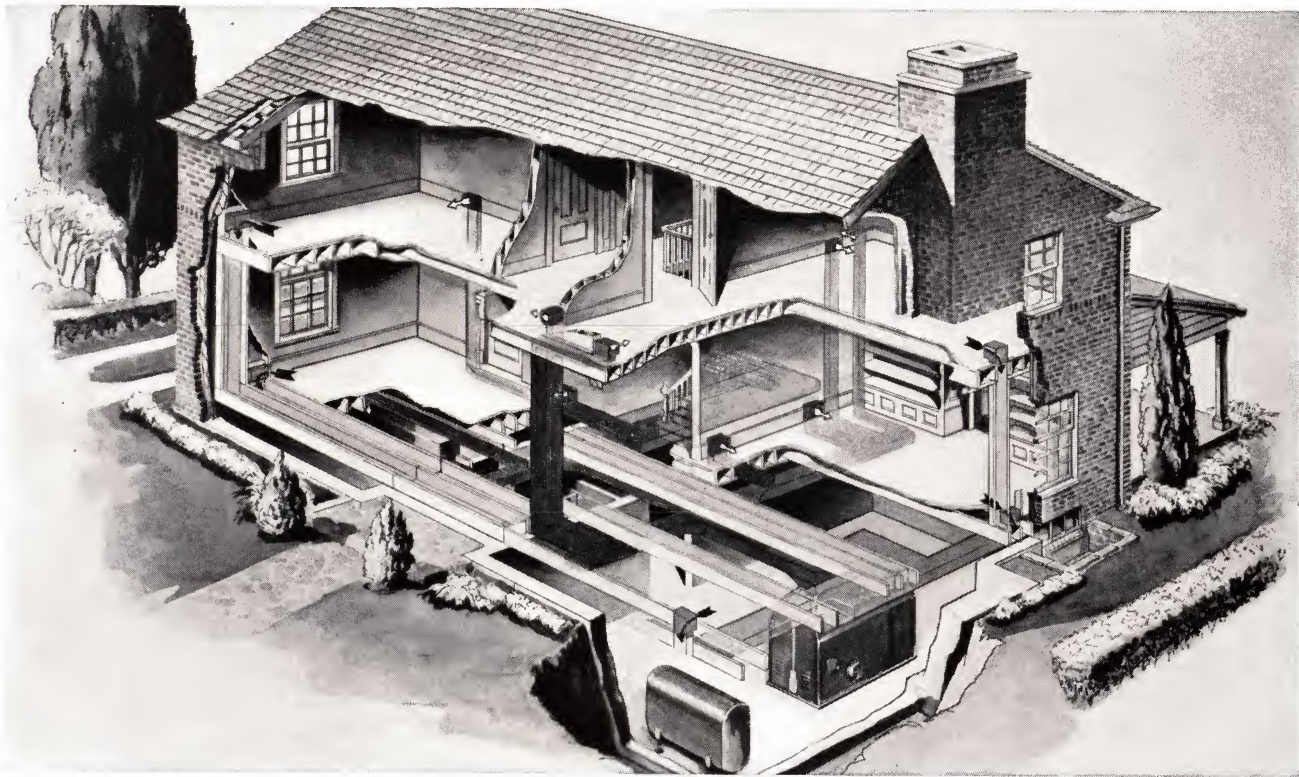
B.T.U. 1 hr. at Bonnet.....	100,000	Heating Surface Firebox.....	5.5 Sq. Ft.
B.T.U. 1 hr. at Grilles.....	80,000	Htg. Surf. Trans. Chamber...	74.5 Sq. Ft.
Air Delivery C.F.M.....	800-1200	Heating Surface Total.....	80 Sq. Ft.
Air Temp. at Bonnet.....	175°-135°	Filter Area.....	25.5 Sq. Ft.
Oil Rate Gal. per hr.....	1.00	Min. Width Door to Admit Unit...	29 In.
Smoke Pipe Diameter.....	7 In.	Crated Weight	840 Lb.

Note:—EW Model comes only in one size. The top dimensions are the duct width and length.



Gar Wood

Gar Wood Standardized **AIRDUX** Give Uniform Performance



The above illustration is of a typical Gar Wood Tempered-Aire "AIRDUX" Duct System. This system is unique, in that it employs standard design fittings.

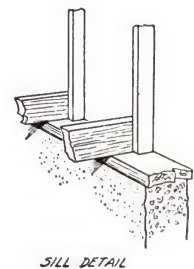
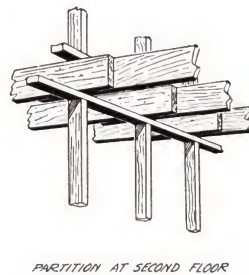
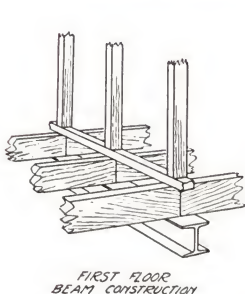
These fittings are Gar Wood laboratory developments. Their purpose is to remove all guesswork from heat and air delivery—to simplify erection—and to improve shop conditions by manufacturing standard and proved fittings for stock, rather than fabricating each job as an individually fitted installation.

Performance tests were made for many months, on every conceivable combination of these standard

fittings, to prove their correctness by determining the exact heat and air delivery. Duplicates of the fittings so developed in the laboratory are made available in all parts of the country, by supplying detail developed drawings of each part to Gar Wood distributors.

That's one of the main reasons why Tempered-Aire performance is so uniformly satisfactory everywhere—one big reason why owners say Gar Wood oil heat costs less than coal—still another reason for the growing preference of architects and builders who know the details of this system.

RECOMMENDED FRAMING DETAILS FOR AIR CONDITIONING DUCTS



AIR CONDITIONING DIVISION, GAR WOOD INDUSTRIES, Inc. DETROIT, MICHIGAN



A C O M P L E T E L I N E O F E Q U I P M E N T